# Program Year 2016



# Maryland Annual





















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# Table of Contents

Summary	1
Economic Indicators	2
Demographics and Labor Force	4
Maryland Growth Industries	6
Industry Sector in Focus – Construction	7
Construction Subsectors	7
Maryland Occupations	9
High school diploma or equivalent	9
Associates and/or non-degree certification	10
Bachelor's degree	10
Post graduate degrees	11
Occupational Focus – Cybersecurity	13
Anne Arundel Workforce Region	14
Anne Arundel Workforce Region Growth Industries	15
Baltimore City Workforce Region	16
Baltimore City Workforce Region Growth Industries	17
Baltimore County Workforce Region	18
Baltimore County Workforce Region Growth Industries	19
Frederick Workforce Region	20
Frederick Growth Industries	21
Lower Shore Workforce Region	22
Lower Shore Growth Industries	23
Mid-Maryland Workforce Region	24
Mid-Maryland Workforce Region Growth Industries	25
Montgomery Workforce Region	26
Montgomery Growth Industries	27
Prince George's Workforce Region	28
Prince George's Growth Industries	29
Southern Maryland Workforce Region	30
Susquehanna Workforce Region	32
Susquehanna Growth Industries	33
Upper Shore Workforce Region	34

Western Maryland Workforce Region	36
Conclusion	38
References	39
Other Helpful Resources	40
Appendix A – NAICS Crosswalk	41
Appendix B – Share of GDP	47
Appendix C – Promising Occupations by Education Level	48
Acknowledgements	53

# **Summary**

Maryland has a diverse economy, which helped dampen the blow of the Great Recession, and assisted in the recovery of employment coming out of the Great Recession. Workers in Maryland are employed in a wide swath of industries, most of which grew from 2015 to 2016.

Despite being one of the younger states, Maryland, like all other states, will face the demographic shift in the labor force as the "Baby Boomer" generation ages out of the labor force. Fortunately, Maryland is poised to overcome this demographic hurdle, with a young labor force, as well as advances in productivity and technology.

The diversity in Maryland's economy is further evidenced by the 21 growth industry subsectors in Maryland. Workers can find jobs in many different occupations that are projected to grow into the future as well. These opportunities exist across educational levels, providing meaningful employment for a diverse population.

At the regional level, these opportunities exist in each of Maryland's workforce regions. Each workforce region had at least 8 growth industry subsectors in 2016, employing a minimum of 33 percent of workers in each region in these growth driving industries.

#### **Economic Indicators**

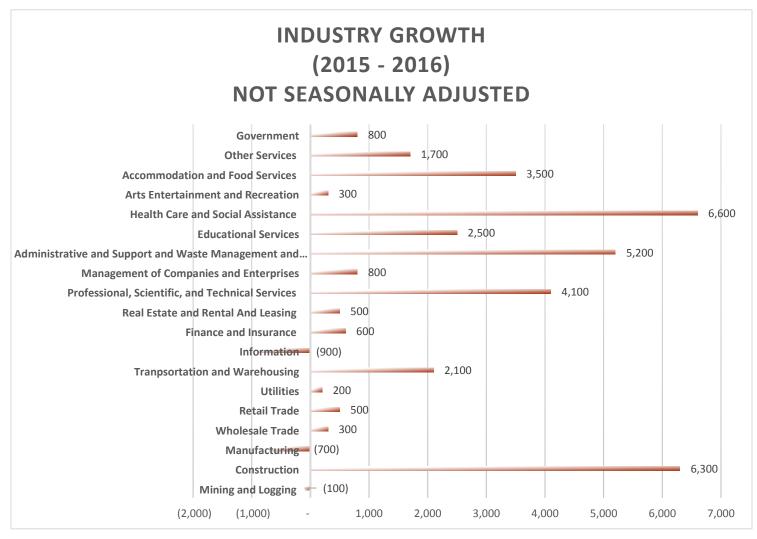
In 2016, National GDP grew at a rate of 1.6% (real GDP) (Bureau of Economic Analysis, 2017). This growth can be attributed mostly to the Information, Professional scientific and technical services, and Healthcare and social assistance sectors. Maryland, by contrast grew at a rate of 1.3% (real GDP) (Bureau of Economic Analysis, 2017) from 2015 to 2016. The growth in Maryland was driven by a similar group of industries, but also including the Construction, and Management of companies and enterprises sectors.

Maryland's GDP in 2016 has a similar distribution across industries, with the largest change in industry share being 0.2 percentage points (Manufacturing, Real estate and rental and leasing, and Professional scientific and technical services). Government represents the largest single sector in Maryland's GDP in 2016, however the Government share of GDP has decreased by 0.1 percentage points as compared to 2015.

As Maryland continues to move onward with the recovery from the Great Recession, Maryland's diverse economy continues to be a strength. Only four of twenty industry sectors (Mining, Manufacturing, Wholesale trade, and Educational services) saw declines in GDP from 2015 to 2016.

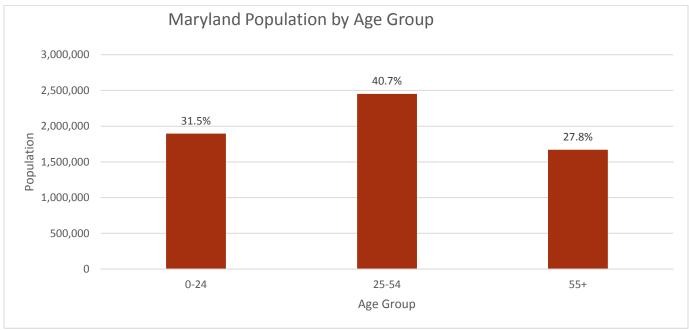
Maryland Real GDP by industry (2015 – 2016) (millions of chained 2009				
dollars)				
Industry	2015	2016	Change	
Agriculture, forestry, fishing, and hunting	662	707	6.8%	
Mining	312	255	-18.3%	
Utilities	6,012	6,252	4.0%	
Construction	14,195	14,802	4.3%	
Manufacturing	18,511	18,151	-1.9%	
Wholesale trade	14,422	14,411	-0.1%	
Retail trade	17,822	18,148	1.8%	
Transportation and warehousing	6,282	6,445	2.6%	
Information	15,059	15,684	4.2%	
Finance and insurance	16,868	17,076	1.2%	
Real estate and rental and leasing	55,641	55,731	0.2%	
Professional, scientific, and technical services	32,883	33,956	3.3%	
Management of companies and enterprises	3,886	3,952	1.7%	
Administrative and waste management services	10,749	11,120	3.5%	
<b>Educational services</b>	4,361	4,298	-1.4%	
Health care and social assistance	24,921	25,243	1.3%	
Arts, entertainment, and recreation	3,575	3,674	2.8%	
Accommodation and food services	8,168	8,179	0.1%	
Other services, except government	7,284	7,410	1.7%	
Government	67,401	67,851	0.7%	

Maryland's industries also saw large gains in employment from 2015 to 2016. The annual average employment for all nonfarm industries in Maryland increased by 33,800 from 2015 to 2016 (not seasonally adjusted) (BLS CES, 2017). Over the past ten years, the employment level has risen by 92,500 jobs -- a 3.5 percent gain. Private employment has grown along a similar trend growing 3.2 percent since 2007 from 2,135,700 to 2,203,800, and adding 33,100 jobs from 2015 to 2016. Healthcare and social assistance, in addition to Construction drove the growth with over 6,000 jobs added in each respective industry. Only three industry sectors saw a decline in annual average employment from 2015 to 2016: Information, Manufacturing, along with Mining and Logging.



# **Demographics and Labor Force**

Based on median age, Maryland is the 28<sup>th</sup> youngest state with a median age of 38.5 years (US Census Bureau, Population Division, 2017). The age distribution in Maryland also points to short and long-term labor availability, with 40.7 percent of the population in prime working age (25-54 years old) and 31.5 percent of the population below the prime working age.



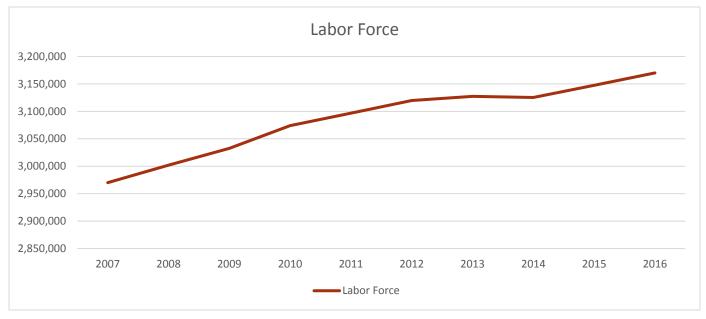
Graph 1 Maryland Age Demographics

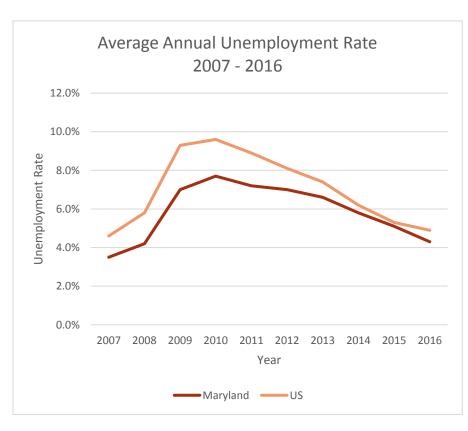
As the entire country faces the ageing of the baby boomer generation, Maryland will see 854,746 people leave the prime working age group in the next ten years. However, due to the age distribution of Maryland's population, most of this gap will be met by the 778,492 people that will age into this category for the same time period -- a 91 percent replacement rate. With increases in productivity and technology, and possibly the addition of workers from other states and countries, Maryland will be able to overcome this demographic hurdle.



Figure 1 Young workers will be available to fill future job roles

In 2016, Maryland's labor force participation rate averaged 67.1 percent (BLS LAUS, 2017). From 2015 to 2016, the labor force participation rate increased by 0.2 percentage points, representing the second consecutive year of labor force participation rate increases. The size of Maryland's labor force has been on an increasing trend over the past 10 years, growing from 2,970,094 in 2007 to 3,170,011 in 2016.





In 2016, Maryland's unemployment rate averaged 4.3 percent, which is 0.8 percentage points lower than the average in 2015 (BLS LAUS, 2017). The United States unemployment rate averaged 4.9 percent in 2016, 0.4 percentage points lower than the 2015 average. Over the past ten years, Maryland's annual average unemployment rate has been below the US annual average unemployment rate. 2015 represented the year the two rates were the closest, with Maryland's rate being 0.2 percentage points lower than the US rate. In 2016, this gap increased to 0.6 percentage points.

# **Maryland Growth Industries**

Growth industries are defined as having a Location Quotient (LQ), a measure of the concentration of employment in a smaller area compared to a larger area<sup>1</sup>, greater than one, and a positive over-the-year growth. In 2016, Maryland had 21 such private industry subsectors. The variation of these industries across multiple sectors again speaks to the diversification of Maryland's economy.



Figure 2 Professional and technical services is the largest growth industry in Maryland

The largest Maryland growth industry subsector is Professional and technical services, an industry which employed 246,864 people in 2016 (BLS QCEW, 2017). This is approximately 11.5 percent of all total employment in Maryland for 2016. From 2015 to 2016, professional and technical services grew by 1.9 percent, or 4,704 employees. In 2016, workers in this industry earned an average of \$1,810 per week -- well above the state average of \$1,072 for private employees. The professional and technical services subsector includes industries that

provide professional, technical, and scientific services for others. Examples include legal services, computer systems design, and advertising services.

The fastest growing Maryland growth industry subsector is Construction of buildings, an industry which added 2,952 employees from 2015 to 2016, representing a growth of 8.7 percent. In 2016 36,810 employees were in this subsector and earned a weekly average of \$1,303. Since 2012, year over year growth in this industry subsector has increased ever year, growing

See the next page for a detailed look at Construction!

from 0.8 percent over-the-year growth in 2012. The largest gain in over-the-year growth came in 2014 when the rate increased by 3.9 percentage points over the 2013 over-the-year growth rate.



Figure 3 Securities, commodity contracts and investments was the highest paying Maryland growth industry in 2016

Securities, commodity contracts, and investments represents the highest paying growth industry subsector with an average weekly wage of \$3,533 -- 3.3 times the state average weekly wage for private employees. This sector employed 18,310 employees in 2016. From 2015 to 2016, 2.7 percent, or 478 individuals were added to the Securities, commodity contracts, and investments industry subsector.

<sup>&</sup>lt;sup>1</sup> For more information about location quotients, please visit: http://www.bls.gov/help/def/lq.htm

# **Industry Sector in Focus – Construction**

Since 2013, the construction industry sector in Maryland has experienced over the year private employment growth every year. This growth has been at an increasing pace, each successive year since 2013 has had a larger over the year growth rate in private employment than the prior year.

#### Construction Subsectors

#### **Construction of buildings**

Establishments primarily responsible for the construction of buildings.

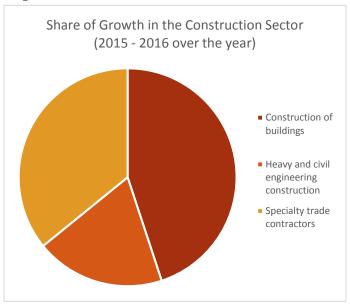
# Heavy and civil engineering construction

Establishments whose primary activity is the construction of entire engineering projects. Examples include infrastructure work (bridges, dams, highways).

#### **Specialty trade contractors**

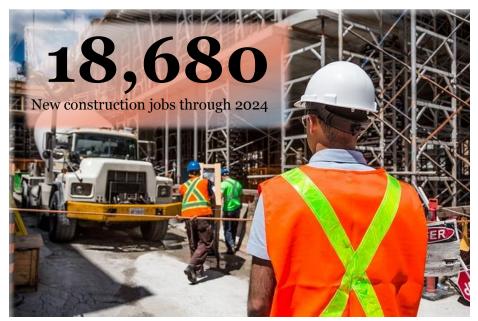
Establishments whose primary activity is performing specific activities involved in building construction or other activities that are similar for all types of construction, but are not responsible for the entire project examples include tiling, plumbing, painting, and HVAC work.

While all the subsectors in Construction showed over the year growth, construction of buildings accounted for 45 percent of all employment growth in the construction sector. Specialty trade contractors accounted for 36 percent and Heavy and civil engineering construction accounted for 19 percent.



Despite construction of buildings representing the largest growth in construction employment from 2015 to 2016, Specialty trade contractors by far represented the largest subsector in construction. This subsector employed 105,573 workers -- 65.6 percent of all construction jobs in 2016.

The smallest subsector of the Construction sector, Heavy and civil engineering construction, boasted the highest annual average weekly wage of the construction subsectors, at \$1,348 per week. Construction of buildings followed at \$1,303 per week, and specialty trade contractors averaged \$1,141 per week.



Construction is projected to grow by 12.5 percent through 2024 (Maryland DLLR, 2017), an increase of 18,680 jobs over the ten-year period starting in 2014. Specialty trade contractors is the subsector projected to grow the most, with a projected gain of 12,659 jobs in the projection period.

# **Maryland Occupations**

The diversity of the Maryland economy lends itself to creating opportunities for a wide range of workers. There are jobs with projected growth and higher than average wages for every education level. Opportunities exist across occupational groups and industries, providing Maryland workers many options to advance in a career field of interest.

Example occupations for each level are highlighted in the sections to follow. Occupation descriptions are from the 2010 Standard Occupation Classification 2010 Manual (Executive Office of the President, Office of Management and Budget, 2010). Wage data is provided by the Maryland DLLR Occupational Employment Statistical program, and projections information is curtesy of the Maryland DLLR projections program. For a full listing of these occupations, see appendix D.

#### High school diploma or equivalent

**First-line supervisors of office and administrative supervisors** directly supervise and coordinate the activities of clerical and administrative support workers. Example titles include clerical supervisor, payroll supervisor, and teller supervisor. Maryland workers in this occupation earn a mean salary of \$61,052. In the 2014-2024 projection period, this occupation is expected to grow by 16.55 percent. With consideration for replacement and growth, approximately 1,585 average annual openings in this occupation are expected.

**Sales representatives, services, all other** sell a variety of services. Examples include Business services sales, Lawn and garden care services sales, and pest control service sales agents. Workers in these occupations earn a mean salary of \$70,497. Projections show an estimated 18.69 percent growth in this occupation through 2024, with an average of 1,179 annual openings.

**Business operations specialists, all other** work to support business operations in a variety of fields and capacities. Example occupations include energy auditors, security management specialists, and online merchants. Maryland workers in this occupation earned a mean salary of \$88,983. Through 2024, this occupation is projected to grow by 14.72 percent, and average 666 annual openings.

**Police and sheriff's patrol officers** maintain order and protect life and property by enforcing local, tribal, State, or Federal laws and ordinances. Maryland workers in this occupation earned a mean salary of \$64,010. Projections estimate a growth of 5.75 percent through 2024, with 527 annual openings.

**First-line supervisors of mechanics, installers, and repairers** directly supervise and coordinate the activities of mechanics, installers, and repairers. Workers in this occupation averaged a 2016 salary of \$68,331. Projections data points to an 11.39 percent growth through 2024, with 374 average annual openings.

#### Associates and/or non-degree certification

**Life, physical, and social science technicians, all other** covers a wide range of technicians in fields ranging from meteorology to polygraph examination. Workers in this occupation earned a mean salary of \$59,393. There will be a projected 25.57 percent growth through 2024, with 329 annual openings.

**Computer network support specialists** analyze, test, troubleshoot, and evaluate existing network systems, such as local area network (LAN), wide area network (WAN), internet systems, or a segment of a network system. Projections indicate an estimated growth of 15.57 percent through 2024, with 290 average annual openings. Workers in this occupation earned a mean salary of \$72,729.

**Web developers** design, create, and modify web sites. Workers in this occupation earned a mean salary of 66,722. Projections estimate 234 annual openings through 2024, for a total of 32.69 percent growth during the projection period.

**Radiologic technicians** take x rays and CAT scans or administer nonradioactive materials into patient's blood stream for diagnostic purposes. In 2016, radiologic technicians earned an average salary of \$65,164. Through 2024, there will be a projected 201 average annual openings, and a total of 18 percent growth.

**Electrical and electronics engineering technicians** apply electrical and electronic theory and related knowledge, usually under the direction of engineering staff, to design, build, repair, calibrate, and modify electrical components, circuitry, controls, and machinery for subsequent evaluation and use by engineering staff in making, engineering design decisions.

#### Bachelor's degree

**Secondary school teachers, except special and career/technical education** teach students in one or more subjects, such as English, mathematics, or social studies at the secondary level in public or private schools. Projections estimate a growth of 22.17 percent through 2024, averaging 1,852 annual openings. Workers in this occupation earned a mean 2016 salary of \$65,926.

**General and operations managers** plan, direct, or coordinate the operations of public or private sector organizations. Duties and responsibilities include formulation policies, managing daily operations, and planning the use of materials and human resources. The characteristics are too diverse and general in nature to be classified in any one function area of management or administration, such as personnel, purchasing, or administrative services. Workers on average in this occupation earned more than double the average salary for Maryland employees in 2016, with a mean annual salary of \$133,257. Projections for this occupation estimate an 18.3 percent growth through 2024, with 1,773 total average annual openings.

**Accountants and auditors** examine, analyze, and interpret accounting records to prepare financial statements, give advice, or audit and evaluate statements prepared by others. Maryland accountants and auditors earned a mean salary of \$82,365 in 2016. Projections estimates a growth of 21.7 percent through 2024. Along with replacement, total annual openings are estimated to be 1,485.

Computer systems analysts analyze, science, engineering, business, and other data processing problems to implement and improve computer systems. They analyze user requirements, procedures, and problems to automate or improve existing systems and review computer system capabilities, workflow, and scheduling limitations. Workers in this occupation earned a 2016 mean annual salary of \$95,889. Projections show this occupation to be in particularly high

See the cyber security in focus section to learn more about IT occupations!

demand through 2024, with an estimated 36.55 percent growth rate. Annual average total openings are estimated to be 825.

**Software developers, systems software** research, design, develop and test operating systems-level software, compilers, and network distribution software for medical, industrial, military, communications, aerospace, business, scientific, and general computer applications. Workers in this occupation earned an average annual salary of \$118,094, more than double the state average salary of \$56,117. Projections data shows this to be another highly sought after occupation through 2024, with 35.34 percent growth in the projection period. This strong growth, combined with replacement openings, brings the total annual average job openings to 777.

#### Post graduate degrees

**Education administrators, elementary and secondary school** plan, direct, or coordinate the academic, administrative, or auxiliary activities of public or private elementary or secondary schools. Maryland school administrators earned an average annual salary of \$104,529 in 2016. Projections estimates indicate a 22.41 percent growth in this occupation through 2024, with 512 total annual openings.

Educational, guidance, school and vocational counselors counsel individuals and provide group educational and vocational guidance services. Example job titles include career counselors and student development advisors. Workers in this occupation earned a mean salary of \$63,228. Through 2024, this occupation is projected to grow by 27.09 percent, with 503 total annual openings.

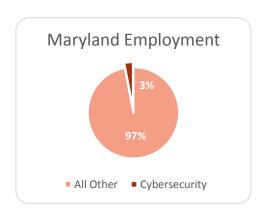
**Physicians and surgeons, all other** includes a variety of specialists such as cardiologists, dermatologists, gastroenterologists, and ophthalmologists. Workers in this occupation earned nearly four times the state average salary, with a mean salary \$190,596. Projections data estimates a growth of 14.31 percent through 2024, with 429 average annual total openings.

**Instructional coordinators** develop instructional material, coordinate educational content, and incorporate current technology in specialized fields that provide guidelines to educators and instructors for developing curricula and conducting courses. Workers in this occupation made an average of \$69,977 in 2016 salary. Projections show high demand through 2024, with 30.77 percent projected growth and 401 total annual openings.

**Physical therapists** assess, plan, and participate in rehabilitative programs which improve mobility, relieve pain, increase strength, and improve or correct disabling conditions resulting from disease or injury. Workers in this occupation earned an average salary of \$87,747 in 2016. Projections data also shows this occupation to be in high demand through 2024, with 34.56 percent estimated growth, and 334 total annual openings.

# Occupational Focus - Cybersecurity

While Cybersecurity is not yet classified as its own industry under BLS NAICS, Cybersecurity jobs play an integral role in Maryland's economy and account for approximately 3 percent of all jobs in Maryland (Occupational Employment Statistics: May, 2016). In order to collect data on Cybersecurity jobs we use an occupational cluster consisting of 10 standard occupational classification numbers from the Computer and Mathematical sector of BLS occupational employment statistics data.



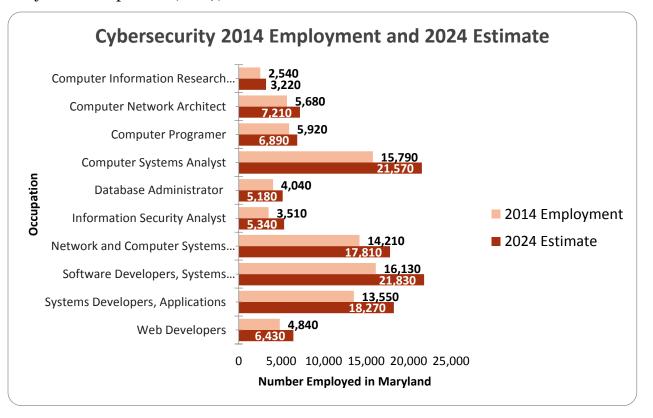
Cybersecurity MD Employment: 83,530

Total MD Employment: 2,640,900

Although most Cybersecurity jobs are listed as requiring a level of preparation and a bachelor's degree (O\*Net), they generally pay higher that the average of all other occupations. (OES: May, 2016)

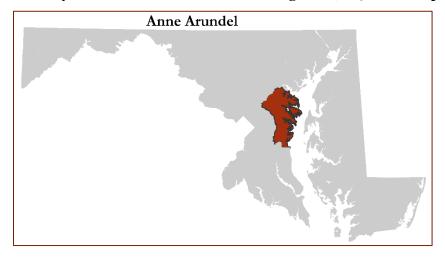
Occupations	Average Salary
Cybersecurity	\$99,592
All Occupations	\$56,120

Cybersecurity jobs have a projected job growth of 32 percent over a ten-year period from 2014-2024, which is significantly faster than the average projected growth for all occupations in Maryland over the same time period of 18.2% (DLLR Occupational Projections: September, 2017).



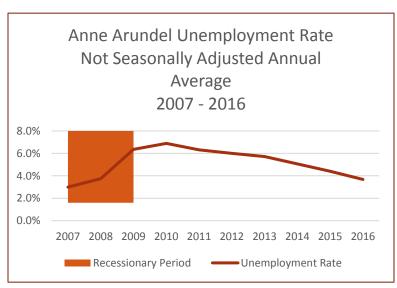
## **Anne Arundel Workforce Region**

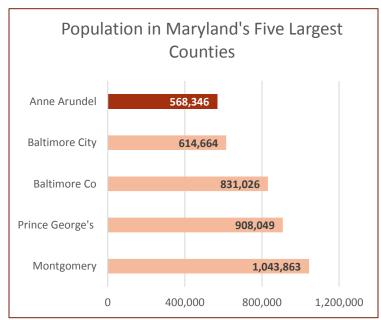
Anne Arundel County is home to 568,346 residents, making it the fifth largest county in Maryland. The labor force in Anne Arundel County has grown to 303,850 after posting six consecutive years of labor force growth. Over the past ten years, the Anne Arundel County labor force has added an average of 2,663 workers per year.



The unemployment rate of 3.7 percent in Anne Arundel County for 2016 was tied as the second lowest annual average rate since 2007, and 3.2 percentage points lower than the ten year high of 6.9 percent in 2010. There are 8,543 fewer unemployed workers in the county since the ten year high of 19,711 in 2010.

In 2016, 221,105 workers were employed by private business in Anne Arundel County at 14,822 business locations, making an average weekly wage of \$1,069.





#### Anne Arundel Workforce Region Growth Industries

Anne Arundel County had 18 growth industries in 2016. These industries employed 112,251 workers at 7,628 business locations. The average weekly wage for the employees in Anne Arundel County growth industries was \$1,097, \$28 higher than for the average for all private employees in the county. Businesses in these industries added 5,435 workers from 2015 to 2016.

Food services and drinking places employed 26,325 workers in 2016, making it the largest of the growth industries in the Anne Arundel Workforce Region. Workers in this subsector earned an average weekly wage of \$380. From 2015 to 2016, 981 new workers joined this industry subsector, a growth of 3.9 percent.

The fastest growing growth industry subsector was Scenic and sightseeing transportation, growing by 13 percent over-the-year. The 19 new employees brought the 2016 employment level to 165. These workers earned an average weekly wage of \$462.

Professional and technical services paid the highest average weekly wage of \$1,929. This subsector was also the second largest growth industry subsector in the county, employing 24,702 in 2016, after adding 1,255 employees throughout 2015 (a 5.4 percent growth rate).



Figure 4 Air Transportation is a major growth industry in Anne Arundel County

As home to BWI Thurgood Marshall Airport, Anne Arundel County has a heavy concentration in the Air transportation industry subsector. This subsector employed 4,670 workers in 2016, after adding 351 throughout 2015 (a growth of 8.1 percent). Workers in this industry subsector earned an average weekly wage of \$1,882, making it the second highest paying industry subsector in the county.

# **Baltimore City Workforce Region**

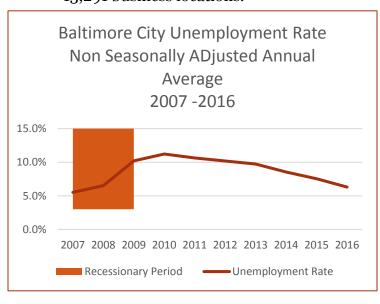
Baltimore City is the fourth largest county in Maryland, with a population of 614,664. The labor force in Baltimore City is 294,985 after two consecutive years of growth. Since 2007, the labor force in Baltimore City has grown by an average of 2,204.

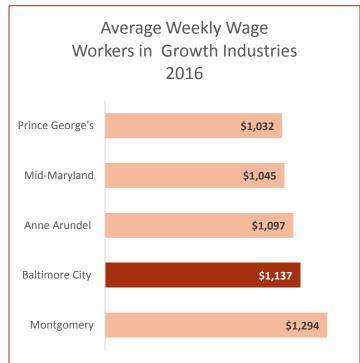


The unemployment rate in Baltimore City in 2016 averaged 6.3 percent, 1.2 percentage points lower than in 2015 and 4.9 percentage points lower than the ten year high of 11.2 percent in 2010. Since 2010, the number of unemployed workers in the labor force has fallen by 14,602 to the third

lowest total in the past 10 years.

Baltimore City is unique in that a majority of its workforce comes from outside of the city (US Census Bureau, 2017). The top five external counties where Baltimore City workers live are Baltimore, Anne Arundel, Howard, Prince George's, and Montgomery counties. 268,421 workers were employed by private businesses in Baltimore City in 2016, making an average weekly wage of \$1,204. These workers were employed at 13,291 business locations.





#### Baltimore City Workforce Region Growth Industries

Baltimore City had nine growth industry subsectors in 2016, employing 88,671 workers at 3,422 business locations. These workers made an average weekly wage of \$1,137. From 2015 to 2016, 4,182 workers were added to these industries.



Figure 5 Educational services employed more than 25,000 in Baltimore City in 2016.

Educational services is the largest of Baltimore City's growth industry subsectors, with a 2016 employment level of 25,641. This subsector is also almost four times as concentrated in Baltimore when compared to Maryland, making it the most concentrated of Baltimore City's growth industry subsectors. Workers in this subsector earned an average weekly wage of \$1,440. Over the year, 277 new employees were added, a 1.1 percent growth rate.

The second largest of Baltimore City's growth industry subsectors is Administrative and support services, employing 21,179 workers, who made an average weekly wage of \$589. From 2015 to 2016, this subsector added 1,869 employees, a growth of 9.7 percent, making it the fastest growing of the growth industry subsectors in Baltimore City.

Publishing industries, with the exception of internet, is the industry subsector where employees make the highest average weekly wage, \$1,582. This industry has seen a 1.5 percentage growth, or thirty employees, over the past year.



Figure 6 Employees in Publishing industries (except internet) make an average weekly wage of \$1,582.

# **Baltimore County Workforce Region**

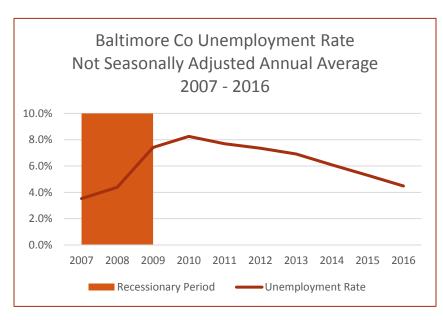
Baltimore County is one of the largest counties in the state with a population of 831,026. The labor force in Baltimore County is also the third largest in the state, with 448,934 participants. Despite having two years of decline in the labor force, the last ten years have seen an average of 3,077 new participants join the labor force per year.

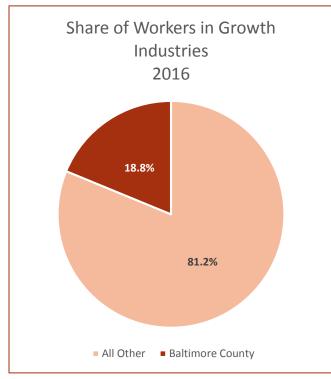


The unemployment rate in Baltimore County averaged 4.5 percent in 2016, 0.8 percentage points lower than the 2015annual average, and 3.8 percentage points lower than the ten year high of 8.3 percent in 2010. 2016 saw the third fewest number of unemployed labor force participants since 2007,

with 20,139. This was 15,471 fewer than the ten year high of 35,610 in 2010.

In 2016, there were 317,916 employees of private businesses in Baltimore County, working at 21,014 business locations and making an average weekly wage of \$981.





#### Baltimore County Workforce Region Growth Industries

Baltimore County had 15 growth industry subsectors in 2016, employing a total of 165,258 workers at 11,288 business locations. These workers made an average weekly wage of \$1,019, which was \$38 higher than the average weekly wage for all private employees in the county. Businesses in these industry subsectors added a total of 4,417 employees from 2015 to 2016.

The largest of the Baltimore County growth industry subsectors is Administrative and

support services, which employed 28,020 employees in 2016, who made an average weekly wage of \$719. Over the year, employment in this subsector grew at a rate of 5.2 percent, adding 1,393 employees.

Repair and maintenance was the fastest growing subsector, with an over-the-year growth rate of 9.3 percent. The 392 additional employees brought the 2016 employment level to 4,609. These employees



Figure 7 Repair and maintenance employed 392 more workers in 2016 than in 2015, a 9.3% growth rate.

made an average weekly wage of \$872.



Figure 8 Workers in Securities, commodity contracts, and investments made an average weekly wage of \$2,222.

The highest paying subsector, Securities, commodity contracts, and investments paid an average weekly wage more than double that of the average for all private employees at \$2,222. This subsector employed 6,182 workers, 483 more than in 2015 (an 8.5 percent growth rate). Securities, commodity contracts, and investments was also the most relatively concentrated subsector in Baltimore County, with a location quotient of 2.56.

## Frederick Workforce Region

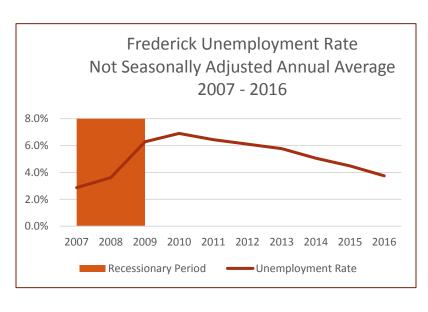
Frederick County has a population of 247,591. The workforce in Frederick County numbers 129,440. The labor force in Frederick has seen an overall increase in the past ten years, with an average annual increase of 639 participants.

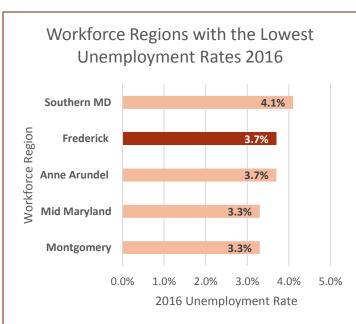


Despite the modest gains in the size of the labor force, Frederick County does boast one of the state's lowest county unemployment rates, with a 2016 annual average of 3.7 percent, which is .08 percentage points lower than in 2015 and 3.2 percentage points lower than the ten year high of

6.9 percent in 2010. Even through the great recession, the Frederick County unemployment rate was consistently ranked among the best for Maryland's workforce regions.

Private employers in Frederick County employed 84,242 workers with an average weekly wage of \$912. Private employment grew by a total of 1.6 percent, adding 1,304 employees from 2015 to 2016.





#### Frederick Growth Industries

Frederick County had 15 growth industry subsectors in 2016, employing 39,763 workers at 2,331 business locations. These workers made an average weekly wage of \$898. Businesses in these subsectors added a total of 2,164 employees from 2015 to 2016.

Food services and drinking places represented the largest growth industry subsector in Frederick, with 9,531 employees in 2016. Workers in this subsector made an average weekly wage of \$342. Food services and drinking places grew by 3.8 percent over the year, adding 348 employees.

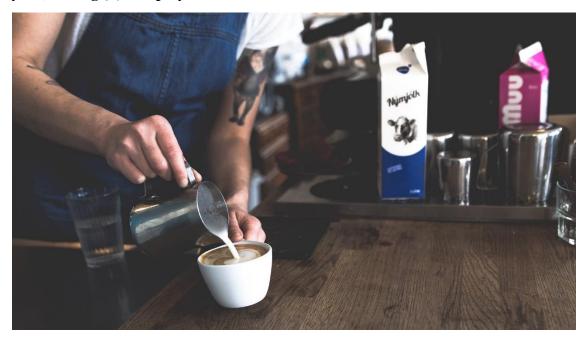


Figure 9 Snack and non-alcoholic beverage bars are part of the Food services and drinking places subsector.

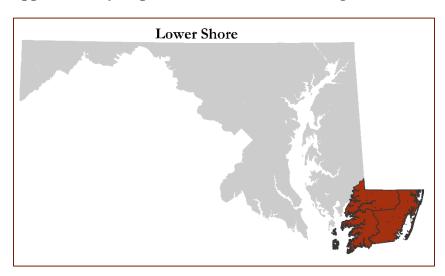
Educational services was the fastest growing of Frederick's growth industry subsectors, with a growth rate of 19.8 percent from 2015 to 2016. The 359 new employees brought the total 2016 employment to 2,173. Workers in Educational services made an average weekly wage of \$630.

At \$1,554, workers in the Credit intermediation and related services subsector earned the highest average weekly wage for workers in Frederick growth industries. In 2016, there were 3,054 workers in this subsector, after a growth of three workers from 2015 to 2016 (a growth rate of 0.1 percent).

Specialty trade contractors is the growth industry subsector with the highest location quotient, at 2.25. This industry employed 6,722 workers who made an average weekly wage of \$1,078 in 2016. Over the year, 514 new workers became employed in this subsector, a growth rate of 8.3 percent.

## **Lower Shore Workforce Region**

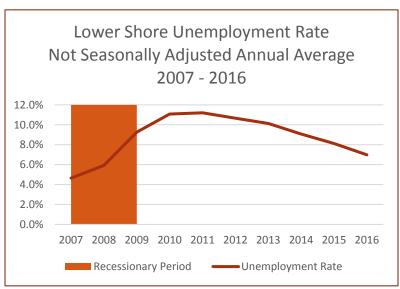
The Lower Shore Workforce Region is comprised of Somerset, Wicomico, and Worcester counties on the Eastern Shore of Maryland. Wicomico county is home to approximately 57 percent of the Workforce Region's 179,949 residents, with a

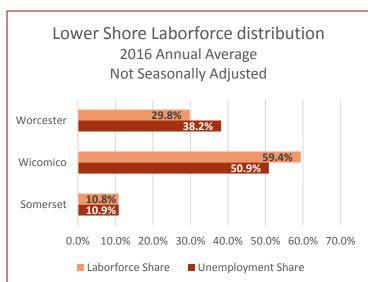


population of 102,577 (US Census Bureau, Population Division, 2017).

The labor force in the Lower Shore Workforce Region reflects the population with 59.4 percent living in Wicomico County. The unemployment rate in The Lower Shore Workforce Region averaged 7.0 percent in 2016, 1.1

percentage points lower than in 2015 and 4.2 percentage points below its ten year high of 11.2 percent in 2011. Unemployment in the region was distributed asymmetrically with 38.2 percent of unemployed residents living in Worcester County, despite Worcester County accounting for 29.8 percent of the labor force.





#### Lower Shore Growth Industries

The Lower Shore has 19 growth industries, currently employing 19,389 employees across 1,376 business locations. These industries spread across almost all industry sectors but are concentrated mostly in retail trade (6 industries, 5,674 workers).



Figure 10 Ambulatory health care services employed 4,178 workers in the Lower Shore Workforce Region

The largest current industry subsector is Ambulatory health care services. This subsector employs 4,178 workers across 339 business locations. Workers in this subsector earned an average weekly wage of \$1,159 in 2016.

Miscellaneous store retailers is the fastest growing subsector with a base year employment of 50 or more employees. It grew 16.4 percent from 2015 to 2016, gaining 70 employees year over year. Workers in this subsector earned an average weekly wage

#### of \$427 in 2016

While a small industry subsector (18 total employees in 2016), Fishing, hunting, and trapping is heavily concentrated in the Lower Shore as compared to Maryland, with a location quotient of 7.00. This industry grew by 200 percent from 2015 to 2016, gaining 12 employees. Employees in this subsector earned an average weekly wage of \$605 in 2016.

The highest paying subsector of the growth industries in 2016 was management of companies and enterprises, where employees earned an average weekly wage of \$2,662 in 2016. This industry subsector also showed substantial growth from 2015



Figure 11Fishing, hunting, and trapping is extremely concentrated in the Lower Shore Workforce Region

to 2016, with a 7.1 percent growth rate year over year, growing by 73 employees.

# Mid-Maryland Workforce Region

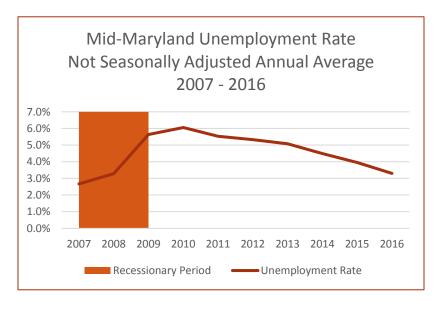
The Mid-Maryland Workforce Region, comprised of Carroll and Howard counties, is home to 484,889 residents. Nearly two-thirds of the residents, 317,233, live in Howard County. The labor force was similarly distributed with 178,637 individuals residing in Howard County and 93,859 residing in Carroll County.



declined from its 2010 ten year high of 15,335 to 8,983.

Unemployment in the Mid-Maryland Workforce Region was distributed along the same lines of population and the labor force. The unemployment rate in Mid-Maryland was 3.3 percent in 2016, 0.7 percentage points lower than in 2015 and 2.8 percentage points lower than the ten year high of 6.1 percent in 2010.

Unemployment has also





#### Mid-Maryland Workforce Region Growth Industries

Mid-Maryland had 27 growth industry subsectors in 2016, employing 80,800 workers at 4,752 business locations. These workers made an average weekly wage of \$1045. Growth industry subsectors accounted for 5,972 new employees from 2015 to 2016.

Administrative and support services was the largest of Mid-Maryland's growth industries with a 2016 employment level of 15,329. Businesses in this subsector added 1,179 employees from 2015 to 2016, a growth rate of 8.3 percent. Workers in Administrative and support services made an average weekly wage of \$878.



Figure 12 Electronic appliance stores more than doubled in employment level from 2015 to 2016.

Workers in Management of companies and enterprises earned an average weekly wage of \$2,069, making it the highest paying growth industry subsector in Mid-Maryland. There were 3,725 workers in this industry in 2016 after adding 151 workers from 2015 to 2016, a growth rate of 4.2 percent.

Of all the growth industry subsectors, Mid-Maryland is most specialized in Lessors of nonfinancial intangible assets. This subsector had a 2016 location quotient of 5.56. The 142 workers in this subsector earned an average weekly wage of \$1,389. Businesses added four employees from 2015 to 2016, a 2.9 percent rate of growth.

Electronics and appliance stores more than doubled in size with a 139.6 percent growth rate, making it the fastest growing of the growth industry subsectors. The 631 additional employees brought the employment level to 1,083 for 2016. These workers made an average weekly wage of \$1,826.

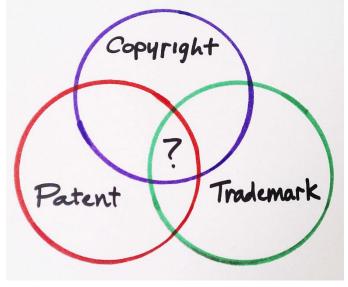


Figure 13 Lessors of nonfinancial intangible assets deal with intellectual property, among other business concerns.

# **Montgomery Workforce Region**

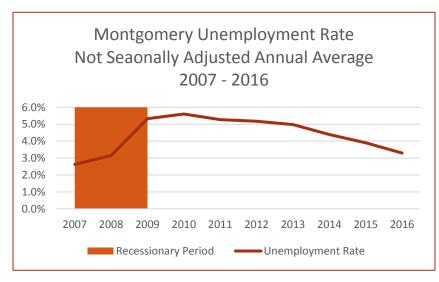
The largest county in Maryland with a population of 1,043,863, Montgomery County is the only Maryland jurisdiction with at least one million residents. Montgomery County also has the largest labor force of the Maryland Workforce Regions, with 551,392 residents either working or actively seeking employment in 2016.



Despite having the largest labor force, Montgomery County did not have the most unemployed labor force participants in 2016 and was tied for the lowest unemployment rate of all workforce regions with Mid-Maryland at 3.3 percent. The 2016 unemployment rate was 0.6 percentage points lower than the 2015 rate and 2.3 percentage points lower

than the ten year high of 5.6 percent in 2010.

Private businesses in Montgomery County employed 373,985 workers at 32,549 business locations in 2016. These workers made an average weekly wage of \$1,305.





#### Montgomery Growth Industries

Montgomery County had 10 growth industry subsectors in 2016, which employed 177,947 workers at 13,480 business locations. These workers made an average weekly wage of \$1,294. Business in these subsectors hired an additional 5,241 employees from

2015 to 2016.

With a 2016 employment level of 64,775, Professional and technical services was the largest of Montgomery County's growth industry subsectors. Workers in this subsector, on average, earned more than the county average for private employees,



Figure 14 Professional and technical services includes Accounting, tax preparation, bookkeeping, and payroll services (NAICS 5412)

with an average weekly wage of \$1,987. An annual growth rate of 3.5 percent not only added 2,161 to businesses in this subsector but made it the second fastest growing of the growth industry subsectors. This subsector was also the most relatively concentrated of the Montgomery County growth industries, with a location quotient of 2.24.

The fastest growing of the growth industry subsectors was Administrative and support services, which grew by 5.0 percent from 2015 to 2016, adding 1,426 employees. This growth brought the 2016 employment level up to 29,851. Workers in Administrative and support services made an average weekly wage of \$916.



Figure 15 Businesses in chemical manufacturing paid an average weekly wage nearly three times the average for private employees.

Businesses in the Chemical manufacturing subsector paid the highest average weekly wage at \$3,405, nearly three times the average for employees of private businesses in the county. Businesses in this subsector employed 3,759 workers, after the addition of 104 workers from 2015 to 2016 (a growth rate of 2.8 percent).

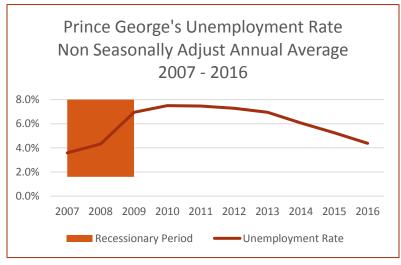
# Prince George's Workforce Region

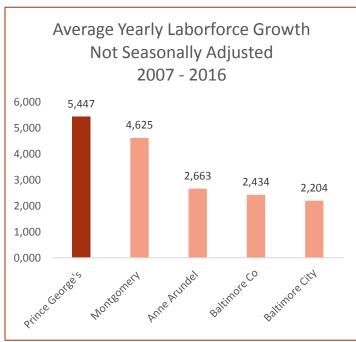
The second largest county in Maryland, Prince George's County is home to 908,049 residents. The labor force in Prince George's county was also the second largest in the state, at 494,517. Prince George's county has added an average of 5,447 participants to the labor force yearly since 2007, the most in the state.



The employment rate in 2016 was 4.4 percent, 0.9 percentage points lower than in 2015 and 3.1 percentage points lower than the ten-year highs of 7.5 percent in 2010 and 2011. Unemployment has decreased by 14,419 workers from the 2011 ten year high of 36,056 to the lowest post-recession level of 21,637.

Private businesses in Prince George's County employed 223,428 workers at 15,553 business locations. These businesses added 5,722 employees from 2015 to 2016 and paid an average weekly wage of \$944.





#### Prince George's Growth Industries

Prince George's County had 14 growth industry subsectors in 2016, employing 77,644 workers at 5,422 business locations. Workers in these subsectors earned an average weekly wage of \$1,032, \$88 more than that of all private employees in the county. Businesses in these subsectors grew by 3,108 employees from 2015 to 2016.



Figure 16 Professional and technical services includes Architecture, engineering, and related services (NAICS 5413)

Professional and technical services employed 21,259 workers in 2016, making it the largest growth industry subsector in Prince George's County. Workers in this subsector made an average weekly wage of \$1,726, nearly double the average weekly wage for all private employees in the county, making Professional and technical services the highest paying of the growth subsectors. The 904 workers businesses added from 2015 to 2016 translates to a 9.4 percent growth rate.

Businesses in Printing and related support activities grew at an annual rate of 34.1 percent from 2015 to 2016, adding 557 workers, bringing total 2016 employment to 2,191 individuals. Workers in this subsector earned more than the average for workers in growth industries, with an average weekly wage of \$1,093.

Prince George's County has a higher relative concentration in Couriers and messengers than Maryland as whole. With a location quotient of 2.96, this subsector is nearly three

times more concentrated in Prince George's County than in Maryland as whole. The 4,124 workers employed in this subsector earned an average weekly wage of \$834. Couriers and messages grew at a rate of 1.4 percent from 2015 to 2016 adding 57 workers.



Figure 17 Prince George's County has a high concentration in Couriers and Messengers

# Southern Maryland Workforce Region

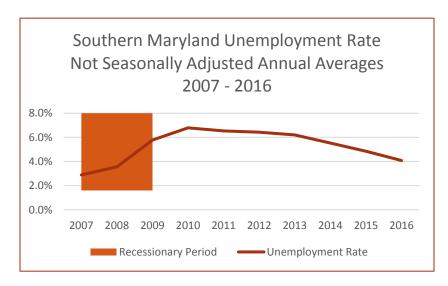
The Southern Maryland workforce region is comprised of Calvert, Charles, and Saint Mary's counties. Charles County is home to a plurality of the 361,543 residents of the workforce region, with a population of 157,705. Saint Mary's is second with 112,587, and Calvert is home to 91,251. The Labor Force and unemployment are similarly distributed

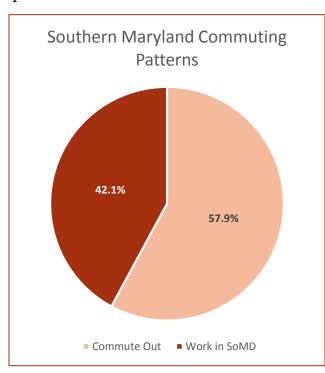


in the Workforce Region.

57.9 percent of the residents in the workforce region commute outside of the workforce region for work. The top five destinations are Prince Georges County, Washington, DC, Anne Arundel County, Montgomery County, and Fairfax County (VA) (US Census Bureau, 2017).

The 2016 annual average unemployment rate in the Southern Maryland Workforce Region was 4.1 percent, 0.8 percentage points lower than the 2015 rate and 2.7 percentage points lower than the ten year high of 6.8 percent in 2010.





#### Southern Maryland Growth Industries

Southern Maryland has eight growth industry sectors employing 27,275 workers in 2,102 business locations. Southern Maryland's growth industry subsectors are heavily concentrated in the retail sector (four of eight subsectors). These workers made an average weekly wage of \$618. From 2015 to 2016, 1,349 jobs were added among Southern Maryland growth industry sectors.

Food services and drinking places employed the most workers in a growth industry subsector, with 11,304 employees in 2016. These employees made an average weekly wage of \$317. This subsector grew at a rate of 3.2 percent, adding 352 employees from 2015 to 2016.

Construction of buildings more than doubled in employment level from 2015 to 2016, adding 623 employees for a 65.8 percent growth rate. Workers in this subsector earned an average weekly wage of \$1,567, the highest of the growth industries in Southern

Figure 18 Residential Building Construction (NAICS 2361) is a component of the Construction of buildings subsector.

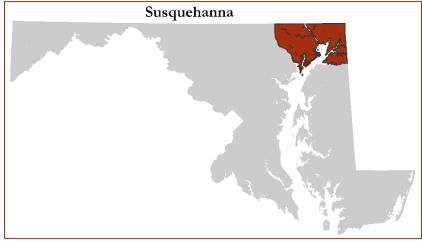
While all growth industry subsectors in the Southern Maryland Workforce region were not heavily concentrated as compared to the concentration in the State, Motor vehicle and parts dealers stands out as having the highest location quotient at 1.55.

Maryland.

This subsector employed 2,420 workers in 2016, up by 65 workers (2.8 percent) from 2015. These workers earned an average weekly wage of \$878.

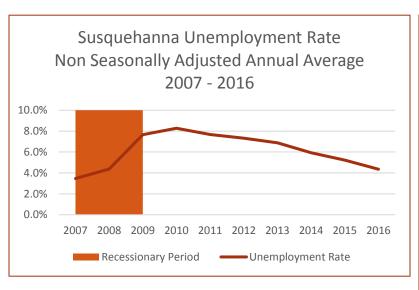
# Susquehanna Workforce Region

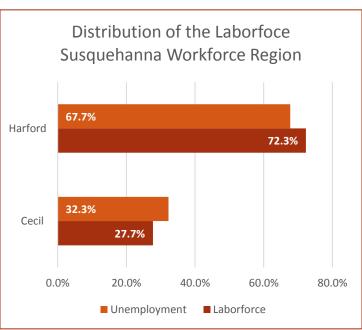
The Susquehanna Workforce Region is comprised of Harford and Cecil Counties. More than 70 percent of the 353,635 residents lives in Harford County. The Labor force is even more weighted toward Harford County with 72 percent of the labor force residing in the county. Cecil County however, accounts for 32 percent of the unemployed workers in the workforce region.



the 2010 ten year high of 15,288.

Unemployment in the Susquehanna Workforce Region was 4.4 percent in 2016, 0.8 percentage points lower than in 2015, and 3.9 percentage points lower than the ten year high in 2010. Unemployment is at its lowest level since the end of the Great Recession, at 8,253 in 2016 it was almost half of





### Susquehanna Growth Industries

The Susquehanna Workforce Region had 17 growth industries in 2016, employing 32,505 workers at 1,865 business locations. Workers in these subsectors earned an average weekly wage of \$674. Businesses in these growth industry subsectors added 964 employees between 2015 and 2016.

Food services and drinking places was the largest of the growth industry subsectors in the Susquehanna Workforce Region, employing 11,245 workers who made an average weekly wage of \$309. A 2.2 percent growth added 238 employees from 2015 to 2016.



The Food manufacturing subsector was the fastest growing growth subsector in 2016, growing by 15.7 percent and adding 124 employees, to raise the employment level to 914. Workers in this industry earned an average weekly wage of \$1,030, \$356 more than the average for all employees in a growth industry subsector.

Figure 19 Dairy Product Manufacturing (NAICS 3115)

Though relatively small, Mining, except oil and gas, was the highest paying of the growth industry subsectors with an average weekly wage of \$1,458. However, after a modest growth of approximately 1 percent (1 employee), only 92 employees are in this industry.

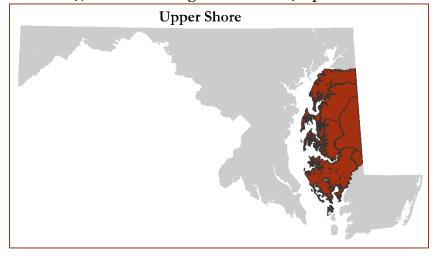
With a location quotient of 6.07, Warehousing and storage was relatively more concentrated in the Susquehanna Workforce Region that in Maryland as whole. There were 4,846 employees at Warehousing and storage establishments, earning an average weekly wage of \$695. A 2.9 percent 2015 to 2016 growth added 138 workers.



Figure 20 Mining employed 92 workers in 2016.

# **Upper Shore Workforce Region**

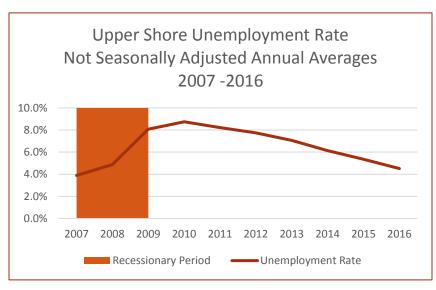
The Upper Shore Workforce Region is comprised of Caroline, Dorchester, Kent, Queen Anne's, and Talbot counties. The population of 171,045 is fairly evenly spread across the five counties, with the exceptions of Queen Anne's being the largest (28 percent of residents), and Kent being the smallest (11 percent of residents).

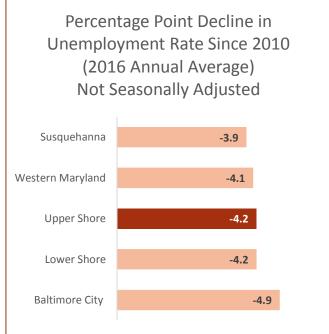


The labor force and number of unemployed residents in the Upper Shore Workforce region are proportional to the population of the counties. Upper Shore residents are more likely to commute outside of the workforce region, than stay locally for jobs with 49.2 percent of residents working in the one of the Upper Shore

counties. (US Census Bureau). Residents are likely to travel to Anne Arundel County, Prince George's County, Baltimore County, Baltimore City, or Worcester County for work.

The 2016 annual average unemployment rate for the Upper Shore was 4.5 percent, 0.9 percentage points lower than the 2015 annual average and 4.2 percentage points lower than the ten year high of 8.7 percent in 2010 (BLS LAUS).





### Upper Shore Growth Industries

The Upper Shore Workforce Region his home to 14 growth industry subsectors, employing 21,094 employees across 1,449 business locations in 2016. Workers in these industries earned an average weekly wage of \$625.

Ambulatory healthcare services is the fastest growing of the Upper Shore Workforce Region's growth industries, with a 14.7 percent over the year job growth, adding 425 new positions from 2015 to 2016. The 3,314 workers in this industry earned an average weekly wage of \$1,048.

The largest of the Upper Shore's growth industry subsectors is Food services and drinking places. This industry employed 5,869 workers in 2016. These workers made an average weekly wage of \$344. Between 2015 and 2016, 241 additional jobs were added, a growth rate of 4.3 percent.

Workers employed in the Merchant wholesalers of durable goods subsector earned \$1,109, the highest average weekly wage for workers employed in an Upper Shore Workforce region growth industry subsector. This subsector employed 1,266 employees in 2016 after adding 85 workers from 2015, a growth rate of 7.2 percent.

d in the Upper Shore

Figure 21 Seafood product preparation and packaging (NAICS 3117)

Food manufacturing is especially concentrated in the Upper Shore Workforce region, with a location

quotient of 5.32. The 1,924 workers in Food manufacturing earned an average weekly wage of \$698. From 2015 to 2016, this industry subsector grew by 8.3 percent, adding 148 workers.

## Western Maryland Workforce Region

Western Maryland is comprised of Allegany, Garrett, and Washington counties. The population of 251,847 is heavily concentrated in Washington County, where nearly 60 percent of the workforce region's residents live. Allegany County accounts for approximately 29 percent and Garrett the remaining 12 percent. The labor force and unemployment fit into a similar distribution.

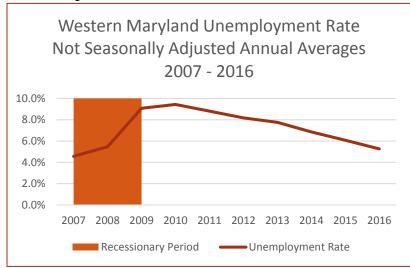


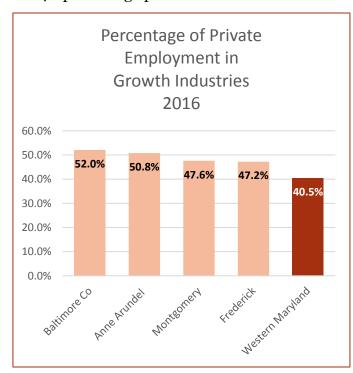
The majority of residents in the Western Maryland Workforce Region work within the region, with 32.6 percent working in Washington County. Workers leaving the workforce region are most likely to go to neighboring Frederick and Montgomery counties.

The unemployment rate in the Western Maryland Workforce Region in 2016 was the second lowest in a ten-year span at 5.3 percent, which is 0.8 percentage points lower than the 2015 annual average unemployment rate and 4.1 percentage points lower than

the ten-year high unemployment rate of 9.4

percent in 2010.





#### Western Maryland Growth Industries

The Western Maryland Workforce Region had 23 growth industry subsectors in 2016, employing 37,050 at 2,345 business locations. These workers made an average weekly wage of \$608. Collectively, these industries added 1,452 employees between 2015 and 2016.

The largest growth industry subsector is Food services and drinking places, which employed 8,940, individuals -- 372 more than in 2015 (a 4.3 percent growth). These workers earned an average weekly wage of \$296.

Warehousing and storage was the fastest growing of the growth industry subsectors in the Western Maryland Workforce Region. It grew at a rate of 19.7 percent year over year. The 127 new employees brought the total employment to 772 employees for 2016. Workers in warehousing and storage earned an average weekly wage of \$715.

Workers in the Transportation equipment manufacturing industry subsector earned the highest average weekly wage at \$1,558. This subsector employed 486 workers in 2016,

four workers higher than the 2015 total (0.8 percent growth).

In the Western Maryland Workforce Region,
Couriers and messengers is an industry subsector 5.11 times more concentrated than in Maryland overall.
The 2,075 workers in this industry subsector, and they make an average weekly wage of \$705. From 2015 to 2016, 111 new workers were added, a growth of 5.7 percent.

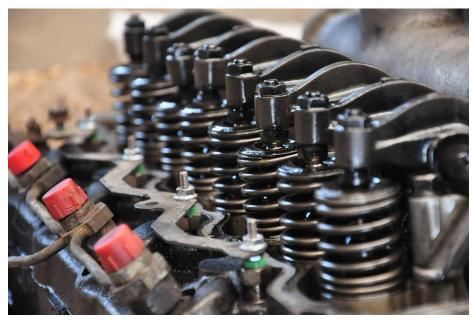


Figure 22 Transportation Equipment Manufacturing paid \$1,558 average weekly wage in 2016.

### Conclusion

While diverse, Maryland's economy is increasingly focused toward service-providing industries. However, goods producing industries are a substantive source of employment growth, with just three of the 21 growth industry subsectors, Goods producing industries, accounting for 22.1 percent of growth industry subsector employment growth in Maryland. Also important is the difference in wages. The Goods producing growth industry subsectors had an average weekly wage of \$1,202, while Service providing growth industry subsectors paid an average weekly wage of \$1,153.

All workforce regions in Maryland are projected to have employment growth through 2024, the industries driving this growth are diverse and provide opportunities to a variety of workers inclusive of all education levels.

As older workers age out of the labor force, bridging the demographic gap will take a combination of younger workers, increases in productivity and technology, and migration from other states and countries.

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## Other Helpful Resources

American Fact Finder

https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml

Cyber Security Education Resource

http://www.cyberdegrees.org/

LMI Central

https://lmi.workforcegps.org/

Maryland Growth Occupation Tool (GOT) and Growth Industry Tool (GIT)

http://www.dllr.state.md.us/lmi/wiagrowthind/

Maryland LMI Homepage

http://www.dllr.state.md.us/lmi/

Maryland Workforce Exchange

https://mwejobs.maryland.gov/vosnet/Default.aspx

North American Industry Classification System (NAICS)

http://www.bls.gov/iag/tgs/iag\_index\_naics.htm

O\*NET (Standard Occupational Classifications (SOC))

http://www.onetonline.org/

**Projections Central** 

http://www.projectionscentral.com/

**Quarterly Workforce Indicators** 

https://qwiexplorer.ces.census.gov/static/explore.html

# Appendix A – NAICS Crosswalk

2 Digit NAICS	% (	Change	3 Digit NAICS	% C	hange 4 Digit NAICS		Chang
					Oilseed and grain farming	1	-1
					Vegetable and melon farming	1	(
					Fruit and tree nut farming	1	
					Greenhouse and nursery production	1	
			Crop production	1	2.6 Other crop farming	4	-1
					Cattle ranching and farming	4	-
					Poultry and egg production	4	_
					Sheep and goat farming	1	
					Aquaculture	1	
			Animal production and aquaculture	T	-1.5 Other animal production	1	
			Forestry and logging	1	2.2 Logging	1	
				-	Fishing	1	2
			Fishing, hunting and trapping		15.6 Hunting and trapping	T.	
			risming, manually and trapping		Support activities for crop production	1	1
					Support activities for animal production	1	
Agriculture, forestry, fishing and hunting	<b>A</b>	2.0	Agriculture and forestry support activities		3.6 Support activities for forestry	1	
Agriculture, forestry, fishing and fluitting	T	2.0	Oil and gas extraction	1	0.0 Oil and gas extraction	1	
			Oil and gas extraction	7		1	
			Mining event all and go	T	Coal mining		
		400	Mining, except oil and gas	_	-2.2 Nonmetallic mineral mining and quarrying	•	
ining, quarrying, and oil and gas extraction	4	-10.3	Support activities for mining	1	0.0 Support activities for mining	1	
					Power generation and supply	1	
					Natural gas distribution	1	
Utilities	1	2.8	Utilities	1	2.8 Water, sewage and other systems	1	-:
					Residential building construction	1	
			Construction of buildings	介	8.7 Nonresidential building construction	1	
					Utility system construction	1	
					Land subdivision	4	
					Highway, street, and bridge construction	4	
			Heavy and civil engineering construction	1	7.3 Other heavy construction	1	
					Building foundation and exterior contractors	1	
					Building equipment contractors	1	
					Building finishing contractors	1	
Construction	1	4.3	Specialty trade contractors	1	2.3 Other specialty trade contractors	1	
	-		,		Animal food manufacturing	1	
					Grain and oilseed milling	ų.	_
					Sugar and confectionery product manufacturing	Ť	_
					Fruit and vegetable preserving and specialty	Ť	_
					Dairy product manufacturing	1	
					Animal slaughtering and processing	1	
					Seafood product preparation and packaging	1	_
			- 1		Bakeries and tortilla manufacturing	1	
			Food manufacturing	T	1.2 Other food manufacturing	1	
					Beverage manufacturing	1	
			Beverage and tobacco product manufacturing	1	10.0 Tobacco manufacturing	1	

2 Digit NAICS	% Change	3 Digit NAICS	% Change				4 Digit NAICS	% (	Change
		Textile mills	1	-5.1	Fabric mills	1	0.0		
					Textile furnishings mills	1	4.1		
		Textile product mills	1	0.4	Other textile product mills	1	-1.0		
					Cut and sew apparel manufacturing	1	-13.2		
		Apparel manufacturing	4	-12.7	Accessories and other apparel manufacturing	1	0.0		
					Footwear manufacturing	1	0.0		
		Leather and allied product manufacturing	1	2.7	Other leather product manufacturing	1	8.6		
					Sawmills and wood preservation	1	-5.3		
					Plywood and engineered wood product mfg.	介	6.7		
		Wood product manufacturing	1	5.7	Other wood product manufacturing	1	11.4		
					Pulp, paper, and paperboard mills	1	-0.7		
		Paper manufacturing	1	-5.8	Converted paper product manufacturing	1	-7.9		
		Printing and related support activities	1		Printing and related support activities	1	5.8		
		Petroleum and coal products manufacturing	1		Petroleum and coal products manufacturing	1	-1.5		
					Basic chemical manufacturing	1	-10.0		
					Resin, rubber, and artificial fibers mfg.	1	12.5		
					Agricultural chemical manufacturing	1	2.8		
					Pharmaceutical and medicine manufacturing	4	-0.4		
					Paint, coating, and adhesive manufacturing	介	2.7		
					Soap, cleaning compound, and toiletry mfg.	4	-1.1		
		Chemical manufacturing	4	-1.2	Other chemical product and preparation mfg.	4	-15.6		
					Plastics product manufacturing	1	-2.1		
		Plastics and rubber products manufacturing	4	-2.1	Rubber product manufacturing	1	-1.3		
					Clay product and refractory manufacturing	1	-10.9		
					Cement and concrete product manufacturing	1			
		Nonmetallic mineral product manufacturing	1	3.3	Other nonmetallic mineral products	1	16.1		
					Iron and steel mills and ferroalloy mfg.	1	-3.1		
					Steel product mfg. from purchased steel	1			
					Alumina and aluminum production	1	0.0		
					Other nonferrous metal production	介	0.0		
		Primary metal manufacturing	1	3.2	Foundries	1	3.8		
					Forging and stamping	1	-6.0		
					Cutlery and handtool manufacturing	1	-12.5		
					Architectural and structural metals mfg.	1	0.5		
					Boiler, tank, and shipping container mfg.	1	1.3		
					Hardware manufacturing	1	33.3		
					Spring and wire product manufacturing	1	-16.2		
					Machine shops and threaded product mfg.	1	1.4		
					Coating, engraving, and heat treating metals	1	1.3		
		Fabricated metal product manufacturing	Ψ.	-2.8	Other fabricated metal product manufacturing	1	-11.1		
					Ag., construction, and mining machinery mfg.	1	-3.3		
					Industrial machinery manufacturing	1	4.9		
					Hvac and commercial refrigeration equipment	1	2.7		
					Metalworking machinery manufacturing	介	3.9		

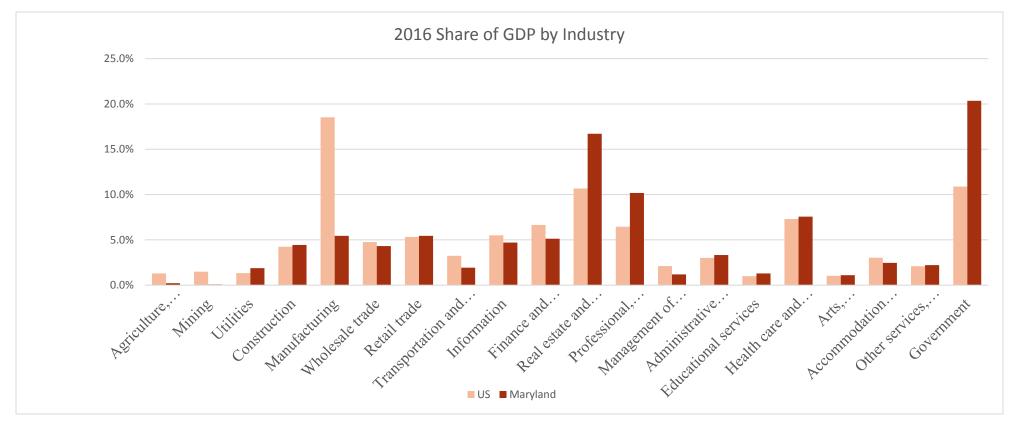
2 Digit NAICS	% Change	3 Digit NAICS	% Ch	ange	4 Digit NAICS	% (	Change
		Machinery manufacturing	4	-4.7	Other general purpose machinery manufacturing	4	-11.9
					Computer and peripheral equipment mfg.	1	6.1
					Communications equipment manufacturing	4	-1.9
					Semiconductor and electronic component mfg.	4	-4.2
		Computer and electronic product manufacturing	1	-0.7	Electronic instrument manufacturing	Ť	
					Electric lighting equipment manufacturing	1	
					Household appliance manufacturing	1	
					Electrical equipment manufacturing	•	
		Electrical equipment and appliance mfg.	T	-1 1	Other electrical equipment and component mfg.	1	
		Electrical equipment and appliance mg.			Motor vehicle body and trailer manufacturing	1	
					Motor vehicle parts manufacturing	1	
						<b>T</b>	
				7.0	Aerospace product and parts manufacturing		
		Transportation equipment manufacturing	4	-/.3	Ship and boat building	<u> </u>	
					Household and institutional furniture mfg.	1	
					Office furniture and fixtures manufacturing	1	
		Furniture and related product manufacturing	1	6.4	Other furniture related product manufacturing	1	
					Medical equipment and supplies manufacturing	1	
Manufacturing	-0.2	Miscellaneous manufacturing	1	0.6	Other miscellaneous manufacturing	4	-1.1
					Motor vehicle and parts merchant wholesalers	1	-1.4
					Furniture and furnishing merchant wholesalers	1	0.5
					Lumber and const. supply merchant wholesalers	1	4.1
					Commercial equip. merchant wholesalers	4	
					Metal and mineral merchant wholesalers	1	
					Electric goods merchant wholesalers	4	
					Hardware and plumbing merchant wholesalers	1	
					Machinery and supply merchant wholesalers	1	
		Merchant wholesalers, durable goods		0.0	Misc. durable goods merchant wholesalers	Į.	
		, 5			Paper and paper product merchant wholesalers	1	
					Druggists' goods merchant wholesalers	4	
					Apparel and piece goods merchant wholesalers	Ť	
					Grocery and related product wholesalers	1	
					Farm product raw material merch. whls.	•	
					Chemical merchant wholesalers	Ť	
					Petroleum merchant wholesalers	1	
		Manakankuda lasalana mandunakla asada		4 -	Alcoholic beverage merchant wholesalers	1	
and the state of		Merchant wholesalers, nondurable goods			Misc. nondurable goods merchant wholesalers		
Wholesale trade	-0.1	Electronic markets and agents and brokers	4	-3.2	Electronic markets and agents and brokers	_	5.2
					Automobile dealers	1	
					Other motor vehicle dealers	<u> </u>	
		Motor vehicle and parts dealers	1	1.8	Auto parts, accessories, and tire stores	1	
					Furniture stores	1	
		Furniture and home furnishings stores	1		Home furnishings stores	1	
		Electronics and appliance stores	1	2.3	Electronics and appliance stores	1	2.3
					Building material and supplies dealers	1	0.0
		Building material and garden supply stores	1	-0.1	Lawn and garden equipment and supplies stores	1	-0.6

2 Digit NAICS	% Change	3 Digit NAICS	% Ch	ange	4 Digit NAICS	% (	Change
		Food and beverage stores	1	1.6	Grocery stores	介	1.5
					Specialty food stores	1	2.3
					Beer, wine, and liquor stores	1	1.2
		Health and personal care stores	1	3.1	Health and personal care stores	1	3.3
		Gasoline stations	4	-1.8	Gasoline stations	4	-1.8
		Clothing and clothing accessories stores	4	-2.1	Clothing stores	4	-2.4
					Shoe stores	4	-2.9
					Jewelry, luggage, and leather goods stores	1	1.2
		Sporting goods, hobby, book and music stores	4	-1.3	Sporting goods and musical instrument stores	4	-1.3
					Book, periodical, and music stores	4	-1.0
		General merchandise stores	4	-0.9	Department stores	4	-4.3
					Other general merchandise stores	1	4.3
		Miscellaneous store retailers	1	0.4	Florists	1	2.7
					Office supplies, stationery, and gift stores	4	-3.6
					Used merchandise stores	介	0.5
					Other miscellaneous store retailers	1	4.3
		Nonstore retailers	1	3.8	Electronic shopping and mail-order houses	1	2.9
					Vending machine operators	1	12.0
Retail trade	<b>1</b> 0.4				Direct selling establishments	1	2.3
		Air transportation	1	7.5	Scheduled air transportation	1	8.3
		·			Nonscheduled air transportation	4	-12.2
		Water transportation	1	1.7	Sea, coastal, and great lakes transportation	4	-20.9
					Inland water transportation	1	4.8
		Truck transportation	1	2.4	General freight trucking	1	3.4
		·			Specialized freight trucking	1	0.3
		Transit and ground passenger transportation	1	1.7	Urban transit systems	1	6.2
					Interurban and rural bus transportation	1	1.9
					Taxi and limousine service	4	-2.3
					School and employee bus transportation	1	0.6
					Charter bus industry	4	-8.9
					Other ground passenger transportation	介	5.6
		Pipeline transportation	1	0.0	Pipeline transportation	1	0.0
		Scenic and sightseeing transportation	4	-5.2	Scenic and sightseeing transportation, water	4	-7.6
		Support activities for transportation	4	-4.7	Support activities for air transportation	4	-1.9
					Support activities for rail transportation	4	-46.5
					Support activities for water transportation	4	-7.:
					Support activities for road transportation	1	7.8
					Freight transportation arrangement	1	2.2
					Other support activities for transportation	4	-47.2
		Couriers and messengers	1	5.3	Couriers and express delivery services	1	4.4
		Ü	-		Local messengers and local delivery	1	12.3
Transportation and warehousing	<b>1</b> 2.8	Warehousing and storage	1	5.8	Warehousing and storage	1	5.8

2 Digit NAICS	% Ch	ange	3 Digit NAICS	% Cł	nange 4 Digit NAICS	% C	hange
					Newspaper, book, and directory publishers	4	-1.0
			Publishing industries, except internet	1	7.1 Software publishers	1	19.9
					Motion picture and video industries	1	2.8
			Motion picture and sound recording industries	1	3.1 Sound recording industries	1	6.3
					Radio and television broadcasting	1	-3.8
			Broadcasting, except internet	1	-5.3 Cable and other subscription programming	Į.	-7.0
			3, 1		Wired telecommunications carriers	Ť	-3.6
					Wireless telecommunications carriers	Ť	-21.2
					Satellite telecommunications	Ť	-25.9
			Telecommunications	JL.	-7.8 Other telecommunications	Ť	-7.1
			Data processing, hosting and related services	1	0.9 Data processing, hosting and related services	1	0.9
Information	JL	-1.8		T.	-4.0 Other information services	T.	-4.0
IIIIOIIIIatioii	-	-1.0	Other information services	_	Depository credit intermediation	1	-2.2
					• •		
					Nondepository credit intermediation	1	4.2
			Credit intermediation and related activities	<u> </u>	-0.3 Activities related to credit intermediation	<u> </u>	-1.4
			Securities, commodity contracts, investments	1	2.7 Other financial investment activities	1	2.8
					Insurance carriers	<b>4</b>	-2.2
			Insurance carriers and related activities	T	0.8 Insurance agencies and brokerages	1	3.5
Finance and insurance	T	0.6	Other investment pools and funds	Ψ	-2.5 Other investment pools and funds	4	-2.5
					Lessors of real estate	1	-2.7
					Offices of real estate agents and brokers	4	-2.1
			Real estate	4	-0.3 Activities related to real estate	1	2.3
					Automotive equipment rental and leasing	1	2.6
					Consumer goods rental	1	1.4
					General rental centers	1	-5.4
			Rental and leasing services	1	4.1 Machinery and equipment rental and leasing	1	12.6
Real estate and rental and leasing	1	0.7	Lessors of nonfinancial intangible assets	4	-6.9 Lessors of nonfinancial intangible assets	4	-6.9
					Legal services	4	-0.2
					Accounting and bookkeeping services	1	-4.3
					Architectural and engineering services	1	0.5
					Specialized design services	1	0.8
					Computer systems design and related services	1	0.9
					Management and technical consulting services	1	7.2
					Scientific research and development services	1	5.2
					Advertising, pr, and related services	4	-1.5
Professional and technical services	4	1.9	Professional and technical services	40	1.9 Other professional and technical services	1	3.2
Management of companies and enterprises	<b>1</b>	4.4	Management of companies and enterprises	1	4.4 Management of companies and enterprises	1	4.4
management of companies and enterprises	'    '	7.4	Management of companies and enterprises	7 11 7	Office administrative services	1	14.7
					Facilities support services		2.0
					Employment services	1	3.1
					Business support services	1	13.0
					Travel arrangement and reservation services	1	0.3
					Investigation and security services	1	2.9
					Services to buildings and dwellings	1	1.6
			Administrative and support services	T	4.1 Other support services	1	3.0
					Waste collection	1	1.9
					Waste treatment and disposal	•	-10.5
Administrative and waste services	1	3.9	Waste management and remediation services	1	0.3 Remediation and other waste services	1	2.9

2 Digit NAICS	% C	hange	3 Digit NAICS	% Cha	nge	4 Digit NAICS	% (	Change
						Elementary and secondary schools	1	0.0
						Junior colleges	•	-41.
						Colleges and universities	1	2.
						Business, computer and management training	1	10.
						Technical and trade schools	1	-15.
						Other schools and instruction	1	7.
Educational services	and the second	1.8	Educational services	an a	1.8	Educational support services	1	5.
Eddedional Sci Vices	7 1	1.0	Eddodional Scivices	7 1		Offices of physicians	1	1.9
						Offices of dentists	1	1.9
						Offices of other health practitioners	1	3.
						Outpatient care centers	1	12.
						Medical and diagnostic laboratories	1	4.
						Home health care services	1	8.
			A b   b   b b		2.0			
		-	Ambulatory health care services	- Tr	3.6	Other ambulatory health care services		-16.
						General medical and surgical hospitals	1	0
						Psychiatric and substance abuse hospitals	•	-1.0
			Hospitals	T	0.5	Other hospitals	1	1.
						Nursing care facilities	<u> </u>	-1.
						Residential mental health facilities	1	0.
						Community care facilities for the elderly	1	3.
			Nursing and residential care facilities	1	0.4	Other residential care facilities	1	-3.
						Individual and family services	1	3.
						Emergency and other relief services	1	1.3
						Vocational rehabilitation services	<b>4</b>	-1.
Health care and social assistance	1	1.8	Social assistance	1	1.8	Child day care services	1	2.
						Performing arts companies	4	-5.
						Spectator sports	1	-3.
						Promoters of performing arts and sports	1	12.
						Agents and managers for public figures	T	-31.
			Performing arts and spectator sports	JL .	-0.9	Independent artists, writers, and performers	1	1.9
		ŀ	Museums, historical sites, zoos, and parks	1		Museums, historical sites, zoos, and parks	1	2.
		İ	mascams, msteriear sites, 2003, and parks			Amusement parks and arcades	1	10.
						Gambling industries	1	-6.
Arts, entertainment, and recreation		0.1	Amusements, gambling, and recreation		0.3	Other amusement and recreation industries	1	1.
Arts, entertainment, and recreation		0.1	Amasements, gambling, and recreation	7	0.5	Traveler accommodation	1	1.
						Rv parks and recreational camps		-22.
			Accommodation		0.3	Rooming and boarding houses	1	35.
		}	Accommodation	T	0.5			
						Special food services	1	2.
		2.4	<b>5</b> - 1 1 1 1 1 1 1 1		2 /	Drinking places, alcoholic beverages		-1.
Accommodation and food services	T	2.1	Food services and drinking places	7	2.4	Restaurants	1	2
						Automotive repair and maintenance	1	3.
						Electronic equipment repair and maintenance	1	1.0
						Commercial machinery repair and maintenance	1	0.:
			Repair and maintenance	T	2.4	Household goods repair and maintenance	1	-3.
						Personal care services	1	1.
						Death care services	Ψ.	-0.
						Drycleaning and laundry services	1	4.
			Personal and laundry services	4	-1.1	Other personal services	•	-10.
						Religious organizations	1	14.
						Grantmaking and giving services	1	4.
						Social advocacy organizations	1	6.
						Civic and social organizations	1	1.
			Membership associations and organizations	1	4.1	Professional and similar organizations	1	1.
Other services, except public administration		1.2	Private households	J.		Private households	1	-2.

# Appendix B – Share of GDP



Full Industry Names in order left to right are:

- Agriculture, forestry, fishing, and hunting
- Mining
- Utilities
- Construction
- Manufacturing
- Wholesale trade
- Retail trade
- Transportation and warehousing
- Information

- Finance and insurance
- Real estate and rental and leasing
- Professional, scientific, and technical services
- Management of companies and enterprises
- Administrative and waste management services

- Education services
- Health care and social assistance
- Arts, entertainment, and recreation
- Accommodation and food services
- Other services, except government
- Government

# Appendix C – Maryland Growth Industries

# Goods Producing

Industry	Employment	Avg. Weekly Wage	Over the Year Growth	Over the Year Growth %
Construction of buildings	36,810	\$1,303	2,952	8.7
Heavy and civil	18,610	1,348	1,261	7.3
engineering construction				
Specialty Trade	105,573	\$1,141	2,356	2.3
Contractors				

### Service Providing

Industry	Employment	Avg. Weekly Wage	Over the Year Growth	Over the Year Growth %
Motor vehicle and parts dealers	37,122	\$977	659	1.8
Electronics and appliance stores	9,742	\$938	220	2.3
Food and beverage stores	68,527	\$501	1,047	1.6
Miscellaneous store retailers	15,510	\$499	57	0.4
Transit and ground passenger transportation	11,691	\$593	194	1.7
<b>Couriers and messengers</b>	13,557	\$858	685	5.3
Securities, commodity contracts, investments	18,310	\$3,533	478	2.7
Rental and leasing services	11,309	\$990	449	4.1
Professional and technical services	246,864	\$1,810	4,704	1.9
Administrative and support services	161,186	\$785	6,302	4.1
Waste management and remediation services	8,601	\$1,000	24	0.3
<b>Educational services</b>	64,414	\$1,058	1,114	1.8
Ambulatory health care services	136,954	\$1,222	4,739	3.6
Hospitals	104,216	\$1,141	481	0.5
Nursing and residential care facilities	70,570	\$641	300	0.4
Amusements, gambling, and recreation	35,864	\$416	97	0.3
Repair and maintenance	24,402	\$861	574	2.4
Membership associations and organizations	25,917	\$1,106	1,021	4.1

# Appendix D – Promising Occupations by Education Level

Occupations with less than 50 projected annual openings omitted. Columns are Occupation Title, Mean Salary (2016 OES), 2014 – 2024 Projections percent change, and 2014 – 2024 Projections Average Annual Openings.

### High school or equivalent

Occupation	Mean Salary	% Change	Annual Openings
First-Line Supervisors of Office and	\$61,052	16.55	1,585
Administrative Support Workers			
Sales Representatives, Services, All Other	\$70,497	18.69	1,179
<b>Business Operations Specialists, All Other</b>	\$88,983	14.72	666
Police and Sheriff's Patrol Officers	\$64,010	5.75	527
First-Line Supervisors of Mechanics, Installers, and Repairers	\$68,331	11.39	374
First-Line Supervisors of Construction Trades and Extraction Workers	\$70,511	14.58	355
First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	\$62,677	17.66	210
Purchasing Agents, Except Wholesale, Retail, and Farm Products	\$78,421	11.09	190
Claims Adjusters, Examiners, and Investigators	\$70,157	5.53	182
First-Line Supervisors of Non-Retail Sales Workers	\$88,870	10.91	110
Property, Real Estate, and Community Association Managers	\$84,092	8.69	109
Telecommunications Line Installers and Repairers	\$60,508	4.6	103
Construction and Building Inspectors	\$56,679	15.07	100
First-Line Supervisors of Correctional Officers	\$61,093	2.07	79
<b>Electrical Power-Line Installers and Repairers</b>	\$69,376	1.41	72
Stationary Engineers and Boiler Operators	\$59,053	16.76	50

# Associates degree or non-degree certification

Occupation	Mean Salary	% Change	Annual Openings
Life, Physical, and Social Science Technicians, All Other	\$59,393	25.57	329
Computer Network Support Specialists	\$72,729	15.57	290
Web Developers	\$66,722	32.69	234
Radiologic Technologists	\$65,164	18	201
Electrical and Electronics Engineering Technicians	\$69,997	10.78	122
Diagnostic Medical Sonographers	\$71,686	40.08	105
Cardiovascular Technologists and Technicians	\$58,868	29.09	88
First-Line Supervisors of Fire Fighting and Prevention Workers	\$87,157	4.92	88

# Bachelor's Degree

Occupation	Mean Salary	% Change	Annual Openings
Secondary School Teachers, Except Special and	\$65,926	22.17	1,852
Career/Technical Education			
General and Operations Managers	\$133,257	18.3	1,773
Accountants and Auditors	\$82,365	21.7	1,485
Computer Systems Analysts	\$95,889	36.55	825
Software Developers, Systems Software	\$118,094	35.34	777
Management Analysts	\$94,793	19.18	642
Network and Computer Systems	\$105,999	25.38	584
Administrators			
Medical and Health Services Managers	\$114,727	20.93	514
Financial Managers	\$145,081	18.86	431
Training and Development Specialists	\$64,480	29.21	411
Human Resources Specialists	\$74,093	15.83	392
Computer and Information Systems Managers	\$146,243	25.5	385
Financial Analysts	\$98,109	29.47	342
Computer Occupations, All Other	\$105,639	7.48	322
Civil Engineers	\$86,367	23.13	315
Administrative Services Managers	\$112,446	20.87	258
Compliance Officers	\$73,828	16.06	253
Computer Programmers	\$89,555	16.4	252
Cost Estimators	\$70,197	16.89	243
Computer Network Architects	\$110,712	27.02	242
Medical and Clinical Laboratory Technologists	\$62,296	13.35	242
Information Security Analysts	\$104,832	52.05	238

Occupation	Mean Salary	% Change	Annual Openings
Personal Financial Advisors	\$108,941	32.05	231
Education Administrators, All Other	\$101,140	29.57	228
Special Education Teachers, Secondary School	\$64,982	20.92	222
Logisticians	\$89,486	34.3	207
Special Education Teachers, Middle School	\$62,493	21.88	206
Operations Research Analysts	\$93,911	36.86	190
Database Administrators	\$87,445	28.19	190
Architectural and Engineering Managers	\$144,923	12.59	173
Construction Managers	\$106,647	12.75	168
Computer Hardware Engineers	\$118,387	19.36	165
Electronics Engineers, Except Computer	\$118,082	8.59	158
Electrical Engineers	\$106,086	13.02	153
Budget Analysts	\$84,723	16.34	142
Social and Community Service Managers	\$77,139	31.99	135
Engineers, All Other	\$117,328	7.82	127
Technical Writers	\$78,014	26.14	123
Environmental Scientists and Specialists, Including Health	\$78,526	22.74	122
Biological Scientists, All Other	\$100,991	6.41	118
Aerospace Engineers	\$124,198	15.75	114
Healthcare Practitioners and Technical Workers, All Other	\$87,660	16.17	112
Architects, Except Landscape and Naval	\$83,130	20.97	109
Financial Specialists, All Other	\$72,789	9.88	103
Chemists	\$108,602	6.56	99
Editors	\$64,039	9.64	94
Health Educators	\$86,663	17.33	91
Natural Sciences Managers	\$140,865	11.59	84
Compensation, Benefits, and Job Analysis Specialists	\$73,187	16.65	82
Microbiologists	\$95,811	14.68	82
Fundraisers	\$63,404	27.11	81
Social Scientists and Related Workers, All Other	\$92,940	13.21	70
Public Relations and Fundraising Managers	\$117,968	27.29	68
Purchasing Managers	\$131,396	12.88	59
<b>Environmental Engineers</b>	\$94,684	23.26	55
Training and Development Managers	\$125,095	27.35	55
Interior Designers	\$58,352	17.61	53
Physical Scientists, All Other	\$123,058	9.83	50

## Post Graduate Degrees

Occupation	Mean Salary	% Change	Annual Openings
Education Administrators, Elementary and Secondary School	\$104,529	22.41	512
Educational, Guidance, School, and Vocational Counselors	\$63,228	27.09	503
Physicians and Surgeons, All Other	\$190,596	14.31	429
Instructional Coordinators	\$69,977	30.77	401
Physical Therapists	\$87,747	34.56	334
Pharmacists	\$120,397	14.39	286
Medical Scientists, Except Epidemiologists	\$107,828	20.12	248
Healthcare Social Workers	\$57,400	25.13	213
Librarians	\$68,715	17.81	191
Physician Assistants	\$96,106	31.88	188
Statisticians	\$101,299	27.99	187
Nurse Practitioners	\$108,170	33.44	177
Nursing Instructors and Teachers, Postsecondary	\$76,561	56.76	168
Occupational Therapists	\$86,174	31.43	156
Health Diagnosing and Treating Practitioners, All Other	\$125,111	6.17	129
Clinical, Counseling, and School Psychologists	\$75,781	25.71	128
English Language and Literature Teachers, Postsecondary	\$73,232	29.98	110
Family and General Practitioners	\$184,130	9.96	109
Computer and Information Research Scientists	\$113,105	26.61	108
Dentists, General	\$165,142	21.98	108
Education Teachers, Postsecondary	\$72,670	32.85	100
Biochemists and Biophysicists	\$84,943	26.48	89
Veterinarians	\$115,360	18.8	70
Computer Science Teachers, Postsecondary	\$100,674	30.6	70
Urban and Regional Planners	\$68,979	13.43	62



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